Delaware - 2001

Forest Health Highlights

The Resource

Delaware's forests presently cover slightly more than one-third of a million acres; whereas, 26 years ago 380,684 acres were forested. Delaware has experienced a rapid conversion of forests and agricultural lands to residential and other urban uses since 1984. The College of Agriculture and Natural Resources at the University of Delaware completed a very detailed analysis of land use in Delaware in 1999 (for details refer to Forest Fragmentation later in this report). In summary, forested acreage was reduced by 9 percent between 1984 and 1992, and this reduction continued at this high rate from 1992 to 1997.

Forest Health Monitoring

Permanent Plots — Nineteen permanent Forest Health Monitoring plots were installed on a State intensified grid system coinciding with the USDA, NS, Forest Inventory and Analysis plots. All 19 plots for 2001 included lichen and soil sampling and a complete vegetation survey; the data from which will reveal the numbers and relative abundance of native and exotic plants associated with Delaware forests. Delaware's FHM program is on a 5-year (5-pane1) schedule. Panel 2 was completed in 2000, and Panel 3 in 2001. Over a 5-year period, all 97 forested plots throughout the State will be visited.

FHM Herpetological Monitoring — Monitoring terrestrial woodland salamander populations three or four times a year, in conjunction with traditional forestry measurements at a site, provides a more complete assessment of forest ecosystem health. In 2001, 10 State FHM plots were re-surveyed, and an 11th plot was added to the monitoring for salamanders using wood cover boards. The 8- by 8-inch rough-cut red oak boards were spaced 50 ft. apart on an 8 by 8 grid (64 total cover boards per plot). Numbers of salamanders increased by about 89 percent overall, but this increase is probably attributable to a more complete "settling in" of the rough-cut the boards.

Forest Pest Issues

Gypsy Moth — Delaware forests continued to have no detectable gypsy moth defoliation based on an aerial survey of the entire State conducted in late June 2001. In the fall of 2000, 39,838 acres of forestland in Delaware were surveyed for the presence of the gypsy moth, but counts were so low we did not conduct a gypsy moth aerial suppression program (the third year in a row in Delaware without a spray program). The continued decline of gypsy moth populations can be attributed, at least in part, by the widespread actions of the fungus *Entomophaga maimaiga* and the gypsy moth nucleopolyhedrosis virus.

Southern Pine Beetle — The southern pine beetle (SPB) is the most damaging pest of pines in the State, and has the potential to kill healthy trees on many forested acres. No significant active SPB hot spots were detected during the gypsy moth aerial survey in June 2001. No significant SPB damage was observed.

Urban Forest Health Issues

Dutch Elm Disease — The Delaware Forest Service (DFS) is currently working with Gary Schwetz of the Delaware Center for Horticulture to mitigate a Dutch elm disease problem. The problem resides in several neighborhoods within Wilmington, where high concentrations of large American elms, averaging about 25 inches in diameter, exist. Following intensive tree-by-tree surveys in 1999 and 2000, the DFS awarded a grant of $10,010 to the DCH for fungicide injections of trees showing slight symptoms of the disease (10 percent or less crown dieback), a management practice designed to enable trees to survive this destructive disease.

Sycamore Canker Stain — The Delaware Forest Service has been investigating a problem identified as canker stain, *Ceratocystis fimbriata*, attacking sycamores in Wilmington. Large sycamores lining the north end of Baynard Boulevard have died over the past seven years. The work to mitigate this problem has been done in cooperation with the 9th Ward Civic Association.

Bacterial Leaf Scorch —This bacterial disease is transmitted to red oaks from low forbs by leaf hoppers. The disease is known to occur in New Castle County, but Kent or Sussex Counties have not been surveyed.

Lack of Urban Tree Diversity — A 1998 survey of our urban and community street tree resource included 1,715 trees and yielded some intriguing information: 78 percent were in good condition; 50 percent were comprised of only five species (four of which were species of maple); 60 percent were causing sidewalk damage, which raises the issue of pedestrian safety and well-being; 33 percent were in conflict with overhead power lines and represent potential threats for localized power-outages during stormy weather.

Forest Health Concerns

Weather — The 1996/97 "Ice Storm Damage" focus funding project still remains active. All cores (1,568 to-the-pith samples) have been measured, and an analysis of the data is forthcoming. A re-measurement of all trees in the study (784) was completed in January 2002.

Exotic Species — The Delaware Forest Service is increasingly concerned with exotic species (animals, plants, and diseases) and their potential threat to Delaware's forest resource. **The Asian longhorned beetle**, *Anoplophora glabripennis*, is of particular concern, because of the heavy concentration of preferred host species (e.g., maples) in Delaware's urban and community forests. Working with the Delaware Cooperative Extension, an Asian longhorned beetle outreach program is currently underway in Delaware. Two identical tabletop displays are now available for use at green industry-related meetings, talks, conferences, and shows over the next 12 months. **The pine shoot beetle**, *Tomicus piniperda*, has not been detected in Delaware, as of September 2001. For the 2000 calendar year, 224 surveys were conducted – 90 retail establishments selling products during the Christmas season and 134 Christmas tree growers and other retailers. The incidence of **dogwood anthracnose** continues to be prevalent in all three Delaware counties. Dead and dying dogwood trees are quite noticeable in many areas of the State. **Hemlock woolly adelgid** remains the major threat to the health of eastern hemlock, and this pest has been confirmed from each of Delaware's three counties.

Delaware Invasive Species Council (DISC) — There is a growing concern over the introduction and establishment of all non-native, invasive species into Delaware in particular, and throughout the United States, in general. If conditions are favorable, some introduced species rapidly spread and disrupt native ecosystems, often causing irreparable harm to our native plant and animal communities. In response to a growing need to effectively address issues involving invasive and exotic species, the Delaware Invasive Species Council (DISC) was recently organized by the DDA Plant Industries Section. The Council, the first of its kind in the United States, is involved with many aspects of invasive, exotic species—promoting public awareness, facilitating an exchange of information on exotic and invasive pest species, encouraging the use of native species, supporting and conducting research, and serving as an advisory panel for various public and private interests concerned with non-native, invasive species.

Forest Fragmentation

The Spatial Analysis Lab, College of Agriculture and Natural Resources, University of Delaware, completed a very detailed analysis of land use in Delaware in 1999. The analysis documented with satellite imagery the rapid conversion of forest and agricultural lands to residential and other urban uses in all three counties during two periods, 1984 to 1992 and 1992 to 1997. During the last period, Sussex County had the largest gross loss of forests (-17,000 acres) in Delaware. This loss resulted from the largest percentage gains in residential acreage and in other urban uses in the State. Kent County had the largest countywide percent loss of forest acreage (-12 percent). New Castle County, below the C&D Canal, experienced a 16 percent net loss of forest acreage from the most rapid localized rate of residential development in the State.

For More Information

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